calcified long (HCL) lesions in 104 consecutive patients (pts). Mean lesion length was 33.73 ± 18.44 mm, with mean reference vessel diameter 3.18 ± 0.62 mm. ROTA was performed using a target burr/artery ratio > 0.75, followed by adjunctive low pressure (< 3 ATM) angioplasty with prolonged (> 120 sec.) inflations of an oversized noncompliant balloon (1.1:1 balloon/artery ratio). We defined this approach as an "optimal" ROTA intended to maximize the post-procedure minimal luminal diameter (MLD).

Results: The procedure was successful in 98.1% pts. Percent stenosis and MLD were as follows:

	Baseline	post ROTA	post PTCA
Stenosis (%)	76.5 ± 10.6	42.0 ± 12.5*	21.5 ± 11.7*
MLD (mm)	0.76 ± 0.41	1.78 ± 0.45*	2.43 ± 0.49*
Dissection		5.77%	3.25% (NS)

*p < 0.001

No death or emergent bypass surgery occurred. Q wave MI and/or creatine kinase > 600 U occurred in 5 pts (4.8%).

Among 60 pts (57.7%) who have completed 6 month follow-up; 18 pts (30%) have developed angiographic restenosis (> 50%).

Conclusions:

(1) High risk lesions can be treated with an "optimal" ROTA technique with acceptable procedural success and complication rates.
(2) Low pressure adjunctive PTCA significantly increases MLD compared to ROTA alone, without increasing dissections.
(3) Angiographic restenosis appears relatively low, with continuing follow-up.

1012-12 Determinants of Regional Myocardial Dysfunction Following Rotational Coronary Atherectomy

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Regional myocardial dysfunction (RMD) immediately following rotational coronary atherectomy (RA) has a prolonged course when compared with angioplasty (PTCA). The mechanism of this difference is poorly understood; but may include impaired blood flow due to embolization of debris, platelet aggregates, or coronary spasm. To examine potential determinants of RMD recovery (such as age, total ischemic time, lesion length, severity and calcification, ejection fraction, and extent and severity of peak RMD), we prospectively quantified the time course of RMD using transthoracic echocardiography. We compared the RMD recovery in 29 patients undergoing RA and adjunctive PTCA to a control group of 10 patients undergoing PTCA alone.

Results: The total ischemic time (minutes) was 9.22 ± 5.7 for RA and 9.55 ± 4.2 for PTCA (P = 0.9). The extent and severity of peak RMD described as a wall motion score index (WMSI), was 1.47 ± 0.28 for RA and 1.48 ± 0.27 for PTCA. The duration of RMD (minutes) was 432 ± 717 for RA and 2.8 ± 1.2 for PTCA (P = 0.003). On multivariate analysis, operator controlled variables reveal total ischemic time and wall motion score index as predictors of RMD recovery time (P = 0.001, r = 0.7).

Conclusion: To limit persistent RMD during RA, the duration of ischemia (and thus burr time) is critical and appears a more important issue than during PTCA alone.

1012-13 Increased rate of minor myocardial cell injury after rotablation compared to PTCA?

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High-frequent rotational coronary atherectomy (Rotablation, RA) is suspected to cause minor myocardial cell injury due to the ablated debris and microcavitation. We compared 102 consequtive pts (male 82, age 62 ± 12) undergoing successful RA to 96 pts (male 77, age 64 ± 14) undergoing uncomplicated PTCA. All pts had complex type B_2 and -C coronary artery lesions. To detect minor myocardial cell injury serial samples of troponin T (TnT) and creatine kinase-MB-mass (CK-MB-mass) were measured before the intervention, immediately after, 4 hrs and 12 hrs after the intervention.

Results: TnT was detected (range 0.10–6.43 μg/l, mean 1.5) in 12 pts (11.7%) undergoing successful RA and in 12 pts (12.5%) after uncomplicated PTCA (range 0.11–11.28 μg/l, mean 2.6). In the RA group 5 pts with positive TnT showed also increased levels of CK-MB-mass (range 5.30–84.10 μg/l, mean 17.7). In the PTCA group, in 4 pts increased CK-MB-mass levels (range 4.5–12.30 μg/l, mean 7.2) were measured. In none of the patients major cardiac events (Q-wave myocardial infarction, emergency CABG, death) occured.

Procedural events explaining the detection of TnT and/or increased CK-MB-levels among RA pts were dissections in 2, slow flow in 5 and severe vessel spasm in 3 pts. From transient angina suffered 5 pts. In the PTCA group 4 pts had dissections after intervention.

Conclusions: 1) Minor myocardial-cell injury after successful RA is equal to that after uncomplicated PTCA. 2) Increased TnT and CK-MB mass levels had no clinical sequelae during hospitalization. 3) TnT was more sensitive than CK-MB-mass in the detection of minor myocardial cell injury.

1012-14 Is Rotational Atherectomy the Treatment of Choice for Chronic Total Occlusions?

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Balloon angioplasty of chronic total coronary occlusions (CTCO) is associated with low success and very high restenosis rates. Stenting of these vessels may improve long term outcome, but is technically difficult in some lesions and is still associated with high restenosis rates. Because CTCOs are fibrocalcific, we postulated that PTCRA would be the ideal intervention. Accordingly, we assessed the procedural success and long term clinical benefit of elective RA in treating 54 consecutive CTCOs which could be crossed with a guidewire. 54 patients (39 m, 15 f) ages 60.0 ± 12 yrs were treated. The vessels treated included LAD 33%, RCA 41% and Cx 26%, using 2.00 ± 0.82 burrs per patient. Adjunctive therapy included stents in 5 (9%), DCA in 3 (5%) and balloons in 41 (77%), while 5 (9%) had stand alone procedures. Angiographic success occurred in 98% with the MLD increasing from 0 to 1.95 ± 0.4 mm (p < 0.001), and residual stenosis of 22.6 ± 10.0% (p < 0.001). Complications occurred in 8 pts (15%): CABG in 2 (4%) (1 perforation and 1 guidewire dissection), non-Q wave MI 5 (9%) and 1 death (2.0%) due to vascular complication. No Q-waves MI occurred. Late follow-up was available in 90.9% at 12.1 ± 5.7 months. 95% pts reported improved symptoms with a mean CHA Class of 1.5 ± 1. One (2.0%) late death occurred. Eight pts (15%) had clinical restenosis which was treated with repeat intervention in 5 (9%), and medically in 2 (4.0%). The revascularization rate was only 9%.

Conclusion: As opposed to other forms of catheter interventions, RA treatment of Chronic Total Coronary Occlusions is associated with high initial success, acceptable acute complication rates and excellent long term benefits.

1012-15 A Comparison after 1 year follow-Up of Costs, Mortality and Morbidity between Multivessel PTCA Performed in a Single Session or Performed as a Staged Procedure

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Patients with coronary artery disease requiring revascularisation can be treated by CABG or multivessel PTCA (mv-PTCA). Recent studies have shown that there is no difference in prognosis between these 2 initial revascularisation strategies. The mv-PTCA can be performed as a staged procedure (SP) or in a single session (SS). We compared SP and SS with regard to mortality, morbidity and medical costs. We studied after 1 year follow-up 149 patients who had a mv-PTCA between january 1994 and june 1995. Clinical endpoints were death, myocardial infarction (MI), additional revascularisation (AR) and catheter related complications (CRC). Unit costs for procedures and hospital days were calculated on the basis of hospital admission data of 1992. Eightythree patients had a mv-PTCA in a SS and 66 patients had a SP. Baseline characteristics, including age, gender, cardiac risk factors and previous cardiac events were comparable, except for smoking (20% SS-group and 40% SP-group (p < 0.05)) and positive family history for CAD (49% SS-group and 67% SP-group (p < 0.05)). In both groups 71% (± 2.8) had 2 vessel disease and 86% (± 3.5) had angina pectoris CCS class 3 or 4.

Results at 1 year:	SS (n = 83)	SP (n = 66)	
Total mortality	3 (3.6%)	3 (4.5%)	ns
MI	2 (2.4%)	2 (3.0%)	ns
AR	23 (27.7%)	22 (33.3%)	ns
CRC	2 (2.4%)	8 (12.1%)	p < 0.05
Costs per patient	$ 11,146	$ 17,420	p < 0.001

Conclusion: elective multivessel PTCA performed in 1 session reduces total medical costs and catheter related complications after 1 year follow-up compared with a staged procedure, without differences in mortality, the incidence of MI or the need for additional revascularisation procedures.